

Last Chance Grade

Route 101 PM 12 to 16

Prepared for DNLTC

10/10/13



INTRODUCTIONS AND SUMMARY

Caltrans

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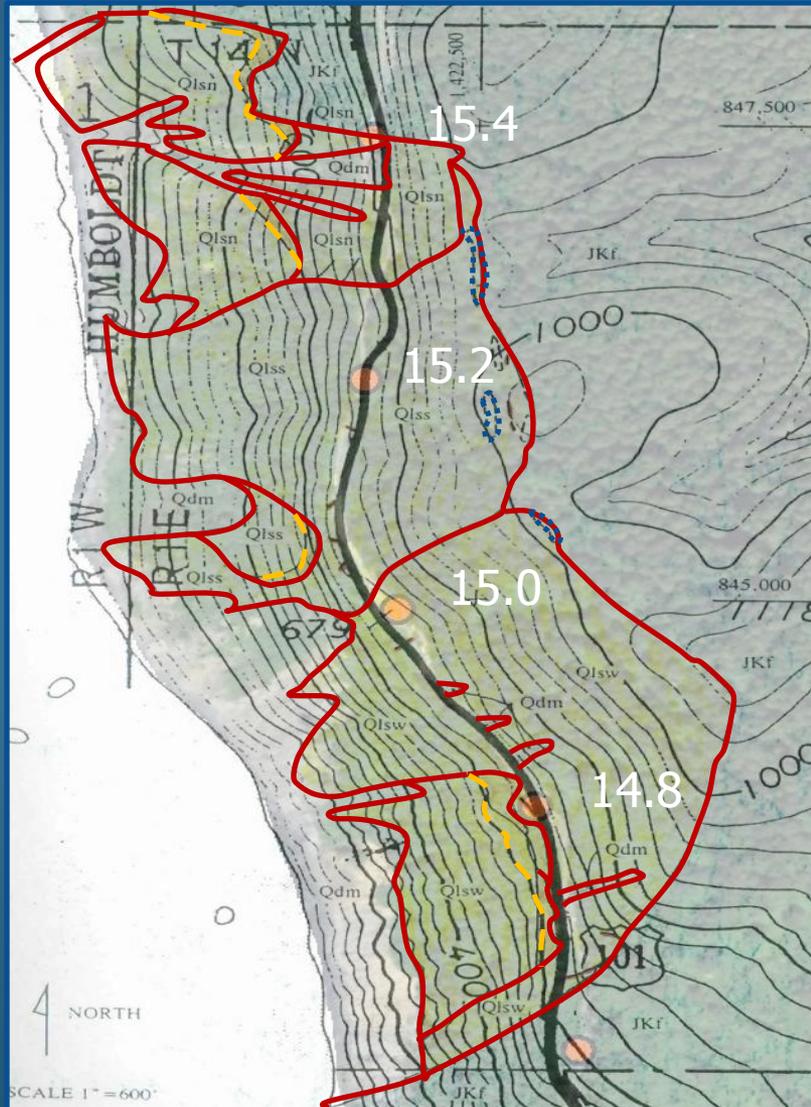
Summary

- Last Chance History and Geology
- Route Maintenance Costs
- Current and Upcoming Projects
- Studies Performed To Date
- Engineered Feasibility Study
- Current Slide Measurements
- Additional Information and Questions

BRIEF HISTORY AND GEOLOGY

- Route completed 1923
- PM 12 to PM 15: Large Landslide Complex
- Nested Landslides and Surf Erosion
- Upper Portion Regular Damage
- Trigger = Heavy Rainfall & High Groundwater

LAST CHANCE GEOLOGY MAP



LEGEND

Qlsn Holocene Age Last Chance Grade Landslide, very active northern portion

Qlss Holocene Age Last Chance Grade Landslide, southern portion

Qlsw Holocene Age Wilson Creek Wall Landslide

Qdm Holocene Age debris flows, shallow landslides, and mass wasting

JKf Cretaceous/Jurassic Age Franciscan Complex melange

SYMBOLS

 Closed Depression

 Tension Cracks

 Landslide Scarp

PROJECT AND MAINTENANCE COSTS SINCE 1997

Map Date	Description	EA	County	Route	Start PM	End PM	Type	Costs
12/20/2012	Rubberized HMA overlay	01-0A7404	DN	101	12.7	15.5	HM1	\$1,222,421
5/1/2012	Repair Slipout	01-0C3904	DN	101	15.27	15.27	EM	\$5,353,548
4/26/2012	Repair Slipout	01-0C3804	DN	101	15.27	15.27	EM	\$432,831
4/4/2012	Repair Slipout - DOR	01-0C2404	DN	101	15	15	EM	\$1,114,054
4/12/2010	Construct Retaining Walls	01-324704	DN	101	15	15.4		\$13,764,187
6/30/2009	Reconstruct Roadway and Place OGFC	01-481704	DN	101	14.4	14.8		\$1,038,070
8/22/2001	Drainage Revisions 2001-02	01-432505	DN	101	12.7	12.9		\$95,718
1/20/2000	OGAC 2000	01-416205	DN	101	15	15.4		\$63,281
5/31/1999	Seal Cracks 1999	01-396904	DN	101	9.4	15.6	HM1	\$428,514
5/24/1999	wilson creek retaining wall, drainage 1999-2000	01-371104	DN	101	14.6	14.6	EM	\$2,882,613
11/2/1998	last chance grade retaining wall 1999	01-386114	DN	101	15.5	15.5	EM	\$845,412
3/4/1998	washout repair	01-387504	DN	101	12.1	12.5	EM	\$270,740
2/25/1998	slipout repair	01-386104	DN	101	15.2	22.8	EM	\$207,802
6/11/1997	wilson creek retaining wall #1-73m repair 1997	01-372405	DN	101	14.4	14.4	EM	\$100,000
Subtotal								\$27,820,000

Field Maintenance Cost from IMMS (Labor, Vehicles, Materials, etc.)	\$1,412,000
*IMMS only goes back to 10/2002, and additional \$500,000 is assumed for 1997-2002	

Total	\$29,232,000
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PROJECTS:



Current Emergency Project

- Estimate: \$4.8 million
- Time Increase: Weather, Materials Acquisition and Subsurface Conditions
- Cost Savings: Smaller Wall with Fewer Tie-Backs



Post Mile 15.27 – March 2011 & 2012
Storm Events



Post Mile 15.0 – March 2012 Storm Event



- Emergency Soil Nail Project Completed Spring 2012
- 11/12 FHWA
Emergency Relief Funds
- Upcoming Project 16/17:
Soldier Pile Wall

Post Mile 15.15 March 2011 Storm Event



- Spring 2011 Caltrans Closed SB Shoulder
- 10/11 FHWA Emergency Relief Funds
- Upcoming Project: Soil Nail Wall 16/17

COMPLETED STUDIES AND REPORTS

1987 – Wilson Creek Project Study Report

1992 – Preliminary Geotechnical Report

1993 – Value Analysis

1993 – US Route 101 in Del Norte County: A Corridor Study

1995 – Last Chance Grade Project Study Report

2000 – USGS Landslide Study – Special Report 184

2001 – Preliminary Geotechnical Report

2002 – Value Analysis

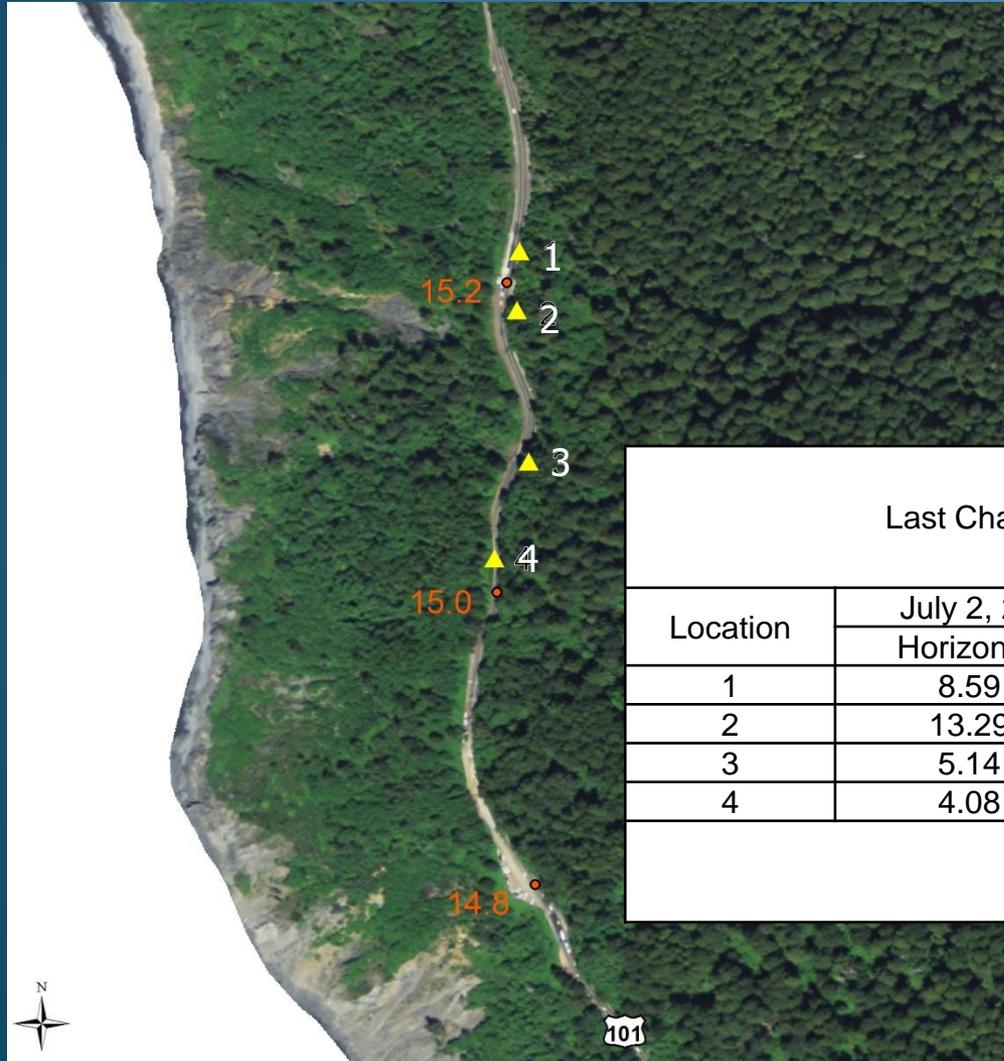
2003 – Supplemental PSSR

2007 – Supplemental PSSR

ENGINEERED FEASIBILITY STUDY

- Scope of Study
 - Collect and Evaluate Current Data
 - Geotechnical, Physical, Economic
 - Review Previous Studies
 - Develop Range of Alternatives
 - Evaluate Feasibility
 - Time, Impacts, Cost
 - Develop Recommendation

SLIDE MONITORING



Last Chance Grade Ground Movement (Inches/Year)*

Location	July 2, 2012 to Feb 27, 2013		Feb 27, 2013 to Sept 18, 2013	
	Horizontal	Vertical Drop	Horizontal	Vertical Drop
1	8.59	8.73	3.28	3.11
2	13.29	10.21	4.49	3.42
3	5.14	2.77	1.67	1.21
4	4.08	2.77	1.65	1.31

*Error +/- 0.25 inches

Additional Information and Questions

- DNLTC, Customer and Partner at Last Chance Grade
- Roadway Relocation Costs
- Alternative Route Duration After Failure
- How can the public assist in construction of a project?

- Other Questions ...

Project Info

www.dot.ca.gov/dist1/d1projects/last_chance_grade/